

PSYCHIE

NOTES ON SOME DIPTEROUS LARVAE.

BY CHARLES W. JOHNSON, BOSTON, MASS.

While collecting at Riverton, N. J., on June 10, 1900, I found in a spring, a large and very peculiar larva. It was placed in an aquarium and for three days was quite active and seemed to be doing nicely. Its large size and the time of the year were both favorable for bringing it to maturity, but on the morning of the fourth day it was dead. As the aquarium was well balanced, I can only account for its death by the change in temperature, as the weather was very warm at the time, and the spring from which it was taken quite cool, about 60°.

While it was living I had a good opportunity to observe its habits and make several sketches, from which the drawings accompanying this article were made. The larva, when extended, was about 45 mm. in length; yellowish white in color, translucent, the alimentary tract, etc., being plainly visible, as the larva moved by expanding and contracting its body. When extended to its full length the posterior portion was elevated almost vertically, and the two pairs of peculiarly ramified appendages extending from the anal prominence were expanded to their full size as shown on Plate I, figures 1 and 2. At other times they were more or less contracted. Figure 2 is made to show the posterior portion vertically extended, and showing the ventral surface. The respiratory disk or stigmatal area bears three pairs of marginal projections, the lower and lateral ones being much the larger; spiracular openings yellow, with a narrow margin of brown and a black central spot. Head yellowish, with a short black line above the base of the antennae; tips of the antennae and mandibles, reddish brown.

The specimen preserved in alcohol, but giving very little idea of its appearance when living, was shown at a meeting of the Feldman Collecting Social, held in June, 1900, and from its size was referred doubtfully to *Tipula abdominalis* (Entom. News, xi, p. 578, 1900). Since that time the larva of *T. abdominalis* has been described and figured by Professor James G. Needham (see "Aquatic Insects in the Adirondacks;" N. Y. State Museum, Bull. 47, p. 575, pl. 35, figs. 1, 2, Sept., 1901). This shows a very different larva—more closely related to that of *Tipula eluta* Loew, described and figured by Mr. C. A. Hart (Bull. Ill. State Lab. Nat. Hist., iv., p. 210, pl. viii., figs. 32, 33, 1895).

It is thus evident that this is not the larva of any of our larger species of *Tipula*, and another correspondingly large form has to be considered. I am, therefore, inclined to look upon this as probably the larva of *Longurio testaceus* Loew. This species is not at all common. I have only seen one from Fairmount Park, Philadelphia, collected by Mr. H. D. Coyle, and two taken by the writer at the Delaware Water Gap, July 12, 15, 1898, along Dunnfield Creek, a cool mountain stream flowing into the Delaware on the New Jersey side. It is to be hoped that this description and figure will lead to the positive identification of this interesting larva.

LIMNOBIA TRIOCELLATA Osten Sacken. Plate I, Figs. 3, 4.

The larva of this species was found in considerable numbers in fungus in the woods at Riverside, near Auburndale, Mass., August 21, 1904. They commenced pupating the following day, and the imago appeared on the 30 and 31.

The larva (Fig. 3), is about 18 mm. in length, cylindrical and gradually tapering towards the ends; color, a translucent yellowish white; mouth parts dark brown. The finely roughened transverse lines at the margins of the segments aid in its locomotion. The larva when found is apparently enveloped in a mucus-like covering, and when disturbed moves very rapidly through the fungus in either direction.

The pupa (Fig. 4) is about 13 mm. in length; yellowish at first, the wings and legs becoming a dark brown with age; antennae curve above the eyes, and disappear beneath the wings; the legs lie parallel to each other on the ventral surface, the tarsal claws ending near the middle of the fourth segment of the abdomen.

ARCHYTAS HYSTRIX Fabr.

This species was bred from *Datura major* Grote, July 7, 1905, by Mr. A. C. Sampson of Sharon, Mass. I can find no previous record of its host.

XYLOTA PIGRA Fabr. Pl. I, Figs. 5, 6.

While searching beneath the bark of pine logs for the larva of *Xylophagus*, I found the larva of this species in considerable numbers. It frequented the wet bark near the ground where there was more or less fermentation of the sappy portions of the wood and bast. The larva (Fig. 5) is about 14 mm. in length, of a dirty yellow or brownish color, with ten or eleven ill defined, rugosely wrinkled segments, covered with short hairs, which are somewhat longer on the sides. The first segment is armed on each side with a pair of black spines,

the posterior one curved backwards; above the spines are small brown papillae; the posterior portion bears on each side three large, hairy, spine-like processes, and terminates with a prominent, shiny brown respiratory tube, showing slight annulations on the middle.

The larvae were collected near Auburndale, Mass., March 26, 1905. They commenced pupating March 31, and continued to do so until April 3, the imagos appearing from April 12 to 15. On June 16, 1904, I captured the adults of this species at the same locality. The pupa (Fig. 6), is about 10 mm. in length; dark brown in color, the black spines and small papillae of the larva being still present, with an additional pair of larger papillae above; the posterior portion also has a similar appearance to the larva, retaining the lateral processes and respiratory tube. The imago emerges through the upper portion of the first two segments.

The larva of this species was also found under similar conditions near South Framingham, Mass., by Mr. A. P. Morse.

Figure 7 represents a larva found by Mr. Owen Bryant at Cohasset, during the latter part of September, among some "woolly" aphids on the wild lettuce (*Lactuca elongata*). The larva was very flat, about 7 mm. in length, slightly roughened, and of a dull yellowish color. It evidently belongs to the Syrphidae. I did not succeed in getting it to pupate.

ZABRACHIA POLITA Coquillett, Plate I, Figs. 8, 9.

Z. polita Coq., Aquatic Insects in the Adirondacks (N. Y. State Museum, Bull. 47, p. 585. 1901).

Associated with the larva of *Xylota pigra* (Fabr.) were a number of small larvae which proved to be this interesting little Stratiomyid, allied to the genus *Pachygaster*. The larva (Fig. 8) is about 5 mm. in length, somewhat flattened, of an obscure brownish color, shiny, with a transverse row of long hairs at or near the middle of each segment. The cephalic portion is narrow and of a reddish color; the posterior segment broadly rounded, with a narrow ventral opening and six long terminal hairs.

This larva cannot be properly classed as an aquatic insect, as the decayed bark in which the specimens were kept frequently became quite dry without any apparent injury, almost every specimen reaching maturity. Although not in water the larva has the same habit as those of *Odontomyia*, etc., of extending the posterior end of its body upward as shown in figure 9. The pupa is formed within the larval skin, with no apparent change, so that the date of pupation cannot be given. The imagos commenced to appear May 12, and continued to do so until June 20.

The adult emerges through a dorsal slit extending across the second, third and part of the fourth segments of the larval skin, the first segment being invariably removed in the process of emerging.